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<u>L4</u>	collision	154380	<u>L4</u>
<u>L3</u>	host	398806	<u>L3</u>
<u>L2</u>	vehicle	1877000	<u>L2</u>
<u>L1</u>	lane adj deviat\$	378	<u>L1</u>

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1. Document ID: US 20050040704 A1

L5: Entry 1 of 10

File: PGPB

Feb 24, 2005

PGPUB-DOCUMENT-NUMBER: 20050040704
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20050040704 A1

TITLE: Vehicle attitude control system

PUBLICATION-DATE: February 24, 2005

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Iwasaki, Katsuya	Kanagawa		JP	
Koyama, Kotaro	Kanagawa		JP	
Kubo, Jun	Tokyo		JP	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
HITACHI UNISIA AUTOMOTIVE, LTD.				03

APPL-NO: 10/ 920379 [PALM]
DATE FILED: August 18, 2004

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2003-207685	2003JP-2003-207685	August 18, 2003

INT-CL: [07] B60 T 8/66

US-CL-PUBLISHED: 303/157
US-CL-CURRENT: 303/157

REPRESENTATIVE-FIGURES: 3

ABSTRACT:

In a vehicle attitude control system of an automotive vehicle employing a pump-and-motor assembly, and a hydraulic actuator that regulates fluid pressures in wheel-brake cylinders of road wheels of the vehicle, independently of each other, a control unit is electronically connected to at least a motor of the pump-and-motor assembly and the hydraulic actuator, for executing vehicle attitude control by

controlling a discharge pressure of the motor-driven pump and by controlling the fluid pressures in the wheel-brake cylinders to respective desired fluid pressures independently of each other. A processing unit of the control unit is programmed to determine a duty ratio of a drive signal of the motor, based on the desired fluid pressure of at least one of the wheel-brake cylinders.

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KOMC](#) | [Drawn](#) | [Des](#)

2. Document ID: US 20040230375 A1

L5: Entry 2 of 10

File: PGPB

Nov 18, 2004

PGPUB-DOCUMENT-NUMBER: 20040230375

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040230375 A1

TITLE: Automotive lane deviation prevention apparatus

PUBLICATION-DATE: November 18, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Matsumoto, Shinji	Kanagawa		JP	
Tange, Satoshi	Kanagawa		JP	
Suzuki, Tatsuya	Kanagawa		JP	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
NISSAN MOTOR CO., LTD.				03

APPL-NO: 10/ 828462 [PALM]

DATE FILED: April 21, 2004

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2003-132899	2003JP-2003-132899	May 12, 2003

INT-CL: [07] G06 G 7/78

US-CL-PUBLISHED: 701/301; 348/148

US-CL-CURRENT: 701/301; 348/148

REPRESENTATIVE-FIGURES: 2

ABSTRACT:

An automotive lane deviation prevention (LDP) apparatus includes a control unit connected to a yawing-motion control actuator for LDP control purposes. The control unit determines, based on information regarding a lane marking line detected based on a picture image in front of a host vehicle, whether the host vehicle is in a

state F.sub.LD.noteq.0 where there is an increased tendency for the host vehicle to deviate from the driving lane. The control unit executes, based on a state Fdw.noteq.0 where the host vehicle is traveling on predetermined irregularities formed on or close to the lane marking line and the information regarding the lane marking line, vehicle yawing motion control by which the host vehicle returns to a central position of the driving lane, in a lane-marking non-detecting state Fcamready=0 where the lane marking line is out of an image pick-up enabling area.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RWIC	Drawn	De
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3. Document ID: US 20040215393 A1

L5: Entry 3 of 10

File: PGPB

Oct 28, 2004

PGPUB-DOCUMENT-NUMBER: 20040215393

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040215393 A1

TITLE: Automotive lane deviation prevention apparatus

PUBLICATION-DATE: October 28, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Matsumoto, Shinji	Kanagawa		JP	
Tange, Satoshi	Kanagawa		JP	
Suzuki, Tatsuya	Kanagawa		JP	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
NISSAN MOTOR CO. LTD.				03

APPL-NO: 10/ 825108 [PALM]

DATE FILED: April 16, 2004

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2003-118896	2003JP-2003-118896	April 23, 2003

INT-CL: [07] G06 F 17/10

US-CL-PUBLISHED: 701/300; 701/041

US-CL-CURRENT: 701/300; 701/41

REPRESENTATIVE-FIGURES: 2

ABSTRACT:

An automotive lane deviation prevention apparatus includes an electronic control unit configured to be electronically connected to a yawing-motion control actuator

such as braking force actuators or a steering actuator for lane deviation prevention and vehicle yawing motion control purposes. The control unit has a processor programmed for determining whether or not a host vehicle is traveling on predetermined irregularities formed on or close to either one of a left-hand side lane marking line and a right-hand side lane marking line of a driving lane. The processor is further programmed for executing vehicle yawing motion control by which the host vehicle returns to a central position of the driving lane, when the host vehicle is traveling on the predetermined irregularities.

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KMC](#) | [Drawn De](#)

4. Document ID: US 20040186650 A1

L5: Entry 4 of 10

File: PGPB

Sep 23, 2004

PGPUB-DOCUMENT-NUMBER: 20040186650

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040186650 A1

TITLE: Automotive lane deviation prevention apparatus

PUBLICATION-DATE: September 23, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Tange, Satoshi	Kanagawa		JP	
Naito, Genpei	Yokohama		JP	
Matsumoto, Shinji	Kanagawa		JP	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
NISSAN MOTOR CO., LTD.				03

APPL-NO: 10/ 798405 [PALM]

DATE FILED: March 12, 2004

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2003-078662	2003JP-2003-078662	March 20, 2003

INT-CL: [07] G06 G 7/76

US-CL-PUBLISHED: 701/096; 701/300

US-CL-CURRENT: 701/96; 701/300

REPRESENTATIVE-FIGURES: 2

ABSTRACT:

An automotive lane deviation prevention apparatus sets and determines a yaw moment

allotted amount corresponding to a yaw-moment-control lane-deviation-avoidance (LDA) controlled variable used to avoid a host vehicle's lane deviation by yaw moment control and a deceleration rate allotted amount corresponding to a deceleration-control LDA controlled variable used to avoid the host vehicle's lane deviation by deceleration control, based on a host vehicle's yaw angle, when the host vehicle has a tendency to deviate from a driving lane. A desired yaw moment is calculated based on the yaw moment allotted amount so that a yaw moment is produced in a direction in which the host vehicle's lane-deviation tendency is avoided. A controlled variable for deceleration control is calculated based on the deceleration rate allotted amount. A braking force of each individual road wheel is controlled based on the desired yaw moment and the controlled variable for deceleration control.

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KIMC](#) | [Drawn De](#)

5. Document ID: US 20040158377 A1

L5: Entry 5 of 10

File: PGPB

Aug 12, 2004

PGPUB-DOCUMENT-NUMBER: 20040158377

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040158377 A1

TITLE: Vehicle dynamics control apparatus

PUBLICATION-DATE: August 12, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Matsumoto, Shinji	Kanagawa		JP	
Naito, Genpei	Yokohama		JP	
Tange, Satoshi	Kanagawa		JP	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
NISSAN MOTOR CO., LTD.				03

APPL-NO: 10/ 769069 [PALM]

DATE FILED: February 2, 2004

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2003-032459	2003JP-2003-032459	February 10, 2003

INT-CL: [07] G06 F 19/00

US-CL-PUBLISHED: 701/048; 701/070

US-CL-CURRENT: 701/48; 701/70

REPRESENTATIVE-FIGURES: 1

ABSTRACT:

In a vehicle dynamics control apparatus capable of balancing a vehicle dynamics stability control system and a lane deviation prevention control system, a cooperative control section is provided to make a cooperative control between lane deviation prevention control (LDP) and vehicle dynamics stability control (VDC). When a direction of yawing motion created by LDP control is opposite to a direction of yawing motion created by VDC control, the cooperative control section puts a higher priority on VDC control rather than LDP control. Conversely when the direction of yawing motion created by LDP control is identical to the direction of yawing motion created by VDC control, a higher one of the LDP desired yaw moment and the VDC desired yaw moment is selected as a final desired yaw moment, to prevent over-control, while keeping the effects obtained by both of VDC control and LDP control.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KM/C	Drawn D
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6. Document ID: US 20040098197 A1

L5: Entry 6 of 10

File: PGPB

May 20, 2004

PGPUB-DOCUMENT-NUMBER: 20040098197

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040098197 A1

TITLE: Automotive lane deviation avoidance system

PUBLICATION-DATE: May 20, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Matsumoto, Shinji	Kanagawa		JP	
Naito, Genpei	Yokohama		JP	
Tange, Satoshi	Kanagawa		JP	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
NISSAN MOTOR CO., LTD.				03

APPL-NO: 10/ 693946 [PALM]

DATE FILED: October 28, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2002-336634	2002JP-2002-336634	November 20, 2002

INT-CL: [07] G08 G 1/16

US-CL-PUBLISHED: 701/301; 701/096, 340/903

US-CL-CURRENT: 701/301; 340/903, 701/96

REPRESENTATIVE-FIGURES: 1

ABSTRACT:

In an automotive lane deviation avoidance system that prevents a host vehicle from deviating from its driving lane by correcting the host vehicle's course in a direction that avoids the host vehicle's lane deviation in the presence of a possibility of the host vehicle's lane deviation, the system calculates a desired yawing moment needed to avoid the host vehicle's lane deviation from the driving lane. The system compensates for the desired yawing moment by a correction factor or a gain, which is determined based on a throttle opening of the host vehicle.

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KWM](#) | [Drawn D](#)

7. Document ID: US 20030195667 A1

L5: Entry 7 of 10

File: PGPB

Oct 16, 2003

PGPUB-DOCUMENT-NUMBER: 20030195667

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030195667 A1

TITLE: Automotive lane deviation avoidance system

PUBLICATION-DATE: October 16, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Tange, Satoshi	Kanagawa		JP	
Naito, Genpei	Yokohama		JP	
Matsumoto, Shinji	Kanagawa		JP	
Yoshizawa, Hiroyuki	Kanagawa		JP	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
NISSAN MOTOR CO., LTD.				03

APPL-NO: 10/ 375475 [PALM]

DATE FILED: February 28, 2003

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2002-109067	2002JP-2002-109067	April 11, 2002

INT-CL: [07] G05 D 1/00

US-CL-PUBLISHED: 701/1

US-CL-CURRENT: 701/1

REPRESENTATIVE-FIGURES: 2

ABSTRACT:

A lane deviation avoidance system for an adaptive cruise control system equipped vehicle includes an electronic control unit that executes a host vehicle's lane deviation avoidance control in which a change in vehicle dynamic behavior occurs in a direction that avoids the host vehicle from deviating from a driving lane when there is a possibility of the host vehicle's lane deviation from the driving lane. The control unit puts a priority on the lane deviation avoidance control by limiting a driving force acting on the host vehicle, when there is the possibility of the host vehicle's lane deviation from the driving lane.

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [K01C](#) | [Drawn De](#)

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8. Document ID: US 20020169531 A1

L5: Entry 8 of 10

File: PGPB

Nov 14, 2002

PGPUB-DOCUMENT-NUMBER: 20020169531

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020169531 A1

TITLE: LANE KEEPING ASSISTANCE SYSTEM AND METHOD FOR AUTOMOTIVE VEHICLE

PUBLICATION-DATE: November 14, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Kawazoe, Hiroshi	Kanagawa		JP	
Shimakage, Masayasu	Kanagawa		JP	
Sadano, On	Kanagawa		JP	
Sato, Shigeki	Kanagawa		JP	

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	COUNTRY	TYPE CODE
NISSAN MOTOR CO., LTD.				03

APPL-NO: 09/ 930168 [PALM]

DATE FILED: August 16, 2001

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	DOC-ID	APPL-DATE
JP	2000-268218	2000JP-2000-268218	September 5, 2000

INT-CL: [07] B62 D 6/00

US-CL-PUBLISHED: 701/41; 180/443

US-CL-CURRENT: 701/41; 180/443

REPRESENTATIVE-FIGURES: 1A

ABSTRACT:

In lane keeping assistance system and method for an automotive vehicle, a control current (Iout) to be outputted to a motor during an automatic steering mode is detected, a filter is provided for the detected control current to pass only signal components of the detected control current whose frequencies are lower than a predetermined cut-off frequency value (fstr, fstr_low, fstr_mid, fstr_hi) to derive a filtered control current (Iout_lpf), a determination of whether a manual steering intervention to the automatic steering occurs is made according to a magnitude of the filtered control current, and the control current outputted to the motor is reduced toward zero when the manual steering intervention is determined to occur according to a result of determination that the magnitude of the filtered control current (Iout_lpf) is in excess of a predetermined threshold current value (Iout_lpf_th).

[Full](#) | [Title](#) | [Citation](#) | [Front](#) | [Review](#) | [Classification](#) | [Date](#) | [Reference](#) | [Sequences](#) | [Attachments](#) | [Claims](#) | [KINIC](#) | [Drawn De](#)

9. Document ID: US 6493619 B2

L5: Entry 9 of 10

File: USPT

Dec 10, 2002

US-PAT-NO: 6493619

DOCUMENT-IDENTIFIER: US 6493619 B2

TITLE: Lane keeping assistance system and method for automotive vehicle

DATE-ISSUED: December 10, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Kawazoe; Hiroshi	Kanagawa			JP
Shimakage; Masayasu	Kanagawa			JP
Sadano; On	Kanagawa			JP
Sato; Shigeki	Kanagawa			JP

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Nissan Motor Co., Ltd.	Yokohama			JP	03

APPL-NO: 09/ 930168 [PALM]

DATE FILED: August 16, 2001

FOREIGN-APPL-PRIORITY-DATA:

COUNTRY	APPL-NO	APPL-DATE
JP	2000-268218	September 5, 2000

INT-CL: [07] G06 F 165/00, G05 D 1/00

US-CL-ISSUED: 701/41; 701/28, 701/117, 701/96, 701/118, 701/223, 180/168, 340/435

US-CL-CURRENT: 701/41; 180/168, 340/435, 701/117, 701/118, 701/223, 701/28, 701/96

FIELD-OF-SEARCH: 701/41, 701/28, 701/42, 701/117, 701/118, 701/207, 701/211,

701/220, 701/223, 701/225, 701/301, 701/96, 180/168, 180/169, 340/435, 340/436,
342/456

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5208750</u>	May 1993	Kurami et al.	364/424.02
<u>6155106</u>	December 2000	Sano	73/118.1
<u>6226592</u>	May 2001	Luckscheiter et al.	701/301

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
0 640 903	March 1995	EP	
9-240502	September 1997	JP	

ART-UNIT: 3663

PRIMARY-EXAMINER: Cuchlinski, Jr.; William A.

ASSISTANT-EXAMINER: Donnelly; Arthur D.

ATTY-AGENT-FIRM: Foley & Lardner

ABSTRACT:

In lane keeping assistance system and method for an automotive vehicle, a control current (I_{out}) to be outputted to a motor during an automatic steering mode is detected, a filter is provided for the detected control current to pass only signal components of the detected control current whose frequencies are lower than a predetermined cut-off frequency value (f_{str} , f_{str_low} , f_{str_mid} , f_{str_hi}) to derive a filtered control current (I_{out_lpf}), a determination of whether a manual steering intervention to the automatic steering occurs is made according to a magnitude of the filtered control current, and the control current outputted to the motor is reduced toward zero when the manual steering intervention is determined to occur according to a result of determination that the magnitude of the filtered control current (I_{out_lpf}) is in excess of a predetermined threshold current value ($I_{out_lpf_th}$).

11 Claims, 13 Drawing figures

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10. Document ID: US 6129025 A

L5: Entry 10 of 10

File: USPT

Oct 10, 2000

US-PAT-NO: 6129025

DOCUMENT-IDENTIFIER: US 6129025 A

TITLE: Traffic/transportation system

DATE-ISSUED: October 10, 2000

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP	CODE	COUNTRY
Minakami; Hiroyuki	Kobe-shi, Hyogo 658				JP
Minakami; Motoyuki	Tsukuba-shi, Ibaraki 350				JP

APPL-NO: 08/ 983292 [PALM]

DATE FILED: April 10, 1998

PCT-DATA:

APPL-NO	DATE-FILED	PUB-NO	PUB-DATE	371-DATE	102(E)-DATE
PCT/JP95/01350	July 4, 1995	WO97/02167	Jan 23, 1997	Apr 10, 1998	Apr 10, 1998

INT-CL: [07] B61 J 3/00, B61 K 1/00

US-CL-ISSUED: 104/88.01; 104/88.02, 104/288, 104/292

US-CL-CURRENT: 104/88.01; 104/288, 104/292, 104/88.02

FIELD-OF-SEARCH: 104/18, 104/20, 104/88.01, 104/88.02, 104/88.03, 104/140, 104/146, 104/288, 104/290, 104/292, 104/295, 104/296, 104/304, 104/305, 104/130.07, 104/130.09, 105/159

PRIOR-ART-DISCLOSED:

U. S. PATENT DOCUMENTS

PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<u>5577593</u>	November 1996	Hooper	104/88.02
<u>5590604</u>	January 1997	Lund	104/88.04

ART-UNIT: 367

PRIMARY-EXAMINER: Morano; S. Joseph

ASSISTANT-EXAMINER: McCarry, Jr.; Robert J.

ATTY-AGENT-FIRM: Limbach & Limbach L.L.P.

ABSTRACT:

In a transportation/logistics system in which a pallet/vehicle with an automobile/container mounted/fixed thereon travels, a normal steering operation is carried out by changing the direction of the wheels (including tires) by an electronically controlled automatic steering system on the basis of steering information, whereby comfortable travel and a smooth turns are obtained. When the pallet/vehicle is about to run off a lane on which it travels, the run-off thereof is prevented physically and mechanically since a fin provided on the pallet/vehicle is inserted in a groove provided in a road, whereby a safe traffic/transportation

system is obtained. The pallet/vehicle obtains a driving force by a gap length regulated/controlled linear induction motor so that the pallet/vehicle can travel at high speeds. In diverging (branching) and merging (converging) points, the diverging (branching)/merging (converging) of the pallet/vehicles is practiced by steering the wheels (tires) by the automatic steering system, and the pallet/vehicle advances with the fin inserted in a groove in a main line or a ramp, whereby a reliable, safe traffic/transportation system adapted to practice high-speed diverging (branching) is obtained. At the exit/entrance of the present invention to/from a general road, a mode interchange is provided which is adapted to convert a traveling mode of an automobile/container, and mounts and fixes an automobile/container on the pallet/vehicle and unfastens such automobile/container.

82 Claims, 79 Drawing figures

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